

**DRAFT**

**INITIAL CONSERVATION TARGETS FOR THE  
CITY OF TUCSON HABITAT CONSERVATION  
PLANNING PROCESS**

Submitted to

**CITY OF TUCSON**

Submitted by

**SWCA ENVIRONMENTAL CONSULTANTS**

**SEPTEMBER 2004**

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CONSERVATION PLANNING PROCESS**

Submitted to

**CITY OF TUCSON  
Comprehensive Planning Task Force  
345 East Toole Avenue  
MacArthur Building  
Post Office Box 27210  
Tucson, Arizona 85726-7210  
(520) 791-4505**

Submitted by

**SWCA ENVIRONMENTAL CONSULTANTS  
343 West Franklin Street  
Tucson, Arizona 85701  
(520) 325-9194**

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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>iv</b>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
<b>2.0 POTENTIAL CONSERVATION TARGETS .....</b>	<b>2</b>
2.1 SPECIES WITH FEDERAL STATUS .....	2
2.2 SPECIES WITH STATE STATUS .....	2
2.3 SPECIES WITH LOCAL STATUS.....	3
<b>3.0 SPECIES CATEGORIZATION .....</b>	<b>3</b>
3.1 SPECIES OCCURRENCE.....	4
3.2 POTENTIAL FOR FEDERAL LISTING .....	6
3.3 TARGET CATEGORIES .....	7
<b>4.0 SPECIAL ELEMENTS.....</b>	<b>8</b>
<b>5.0 INITIAL CONSERVATION TARGETS WITH CATEGORIZATIONS BASED ON     OCCURRENCE AND FEDERAL LISTING POTENTIAL .....</b>	<b>9</b>
<b>6.0 REFERENCES .....</b>	<b>A-10</b>

## LIST OF TABLES

Table 1. Species Occurrence Categories. ....	5
Table 2. Potential Federal Listing Categories as Based on the Marana Habitat Conservation Planning Process. ....	7
Table 3. Conservation Target Categories Based on Species Occurrence or Potential for Occurrence and Listing Status or Potential. ....	8
Table 4. SDCP Special Element Conservation Goals. ....	9

## EXECUTIVE SUMMARY

SWCA Environmental Consultants evaluated potential target species for inclusion in the City of Tucson's habitat conservation planning (HCP) process. The City of Tucson is pursuing the development of a Habitat Conservation Plan (HCP) for the purpose of obtaining incidental take coverage for future urban development and related capital improvement projects within the HCP planning area. One of the first steps in developing an HCP is to identify those species, and any communities, habitats, or landscape features (referred to as special elements), to include in the planning process. These species and special elements are collectively referred to as conservation targets.

This report considers species which could be impacted by City implemented or permitted activities on approximately 65,000 acres, including the "Southlands" study area, consisting of State Trust Land and City-owned land in the southeastern portion of City; parcels in Avra Valley owned by the City of Tucson Water Department (Tucson Water); and the portion of the Santa Cruz River within the City limits. Specific goals of this report are to: (1) describe the criteria used to evaluate species for consideration under a Habitat Conservation Plan (HCP), Safe Harbor Agreement (SHA) or Candidate Conservation Agreement (CCAA); (2) provide a framework for considering special elements in the planning process; and (3) classify a suite of potential target species with respect to occurrence and listing potential.

A total of 97 special interest species, including 27 listed by the U.S. Fish and Wildlife Service (USFWS) as threatened, endangered, or candidates in Pima County, are considered in this report. The species considered here are those (1) recognized by the USFWS as listed or as Species of Concern (SOC), (2) considered to be Wildlife of Special Concern in Arizona (WSCA) by the Arizona Game and Fish Department (AGFD), (3) protected under the Arizona Native Plant Law (ANPL) as Highly Safeguarded (HS), (4) recognized as Priority Vulnerable Species (PVS) in the Draft Sonoran Desert Conservation Plan (SDCP), and/or (5) identified as potential HCP targets in the Town of Marana habitat conservation planning process (MHCP). Based on the City's criteria, of the 97 species considered, 8 are potential HCP targets and another 6 would be considered for a SHA/CCAA. Forty-nine (49) will be dropped from detailed evaluation because the study area is either (1) clearly outside the known range of the species, or (2) does not contain vegetation communities or substrate conditions known to support the species. Another 25 species do not meet the criteria for consideration under either an HCP or SHA/CCAA because they (1) were not likely to be listed in the next 5 to 10 years, or (2) were not likely to naturally recolonize the planning area even if suitable habitat was created or restored as a part of one or more Army Corps of Engineers restoration projects. The remaining 9 species were not classified based on listing status pending further evaluation of their likelihood for federal listing within the next 5 to 10 years.

## 1.0 INTRODUCTION

SWCA Environmental Consultants was contracted by the City of Tucson to evaluate potential target species for inclusion in the City of Tucson's habitat conservation planning (HCP) process. The City of Tucson is pursuing the development of a Habitat Conservation Plan (HCP) for the purpose of obtaining incidental take coverage for future urban development and related capital improvement projects within the HCP planning area. One of the first steps in developing an HCP is to identify those species, and any communities, habitats, or landscape features (referred to as special elements), to include in the planning process. These species and special elements are collectively referred to as conservation targets.

The technical and stakeholder advisory committee charters identify criteria by which species will be considered for inclusion within the City's planning process. These criteria relate to species occurrence and presence of suitable habitat within the planning area and listing status or likelihood of listing within the next 5 to 10 years, and are the basis for the species classifications made in this report. The planning area for the City's HCP process includes approximately 35,000 acres in the "Southlands" study area, consisting of State Trust Land and City-owned land in the southeastern portion of City; several parcels in Avra Valley owned by the City of Tucson Water Department (Tucson Water) and totaling about 24,000 acres; and the portion of the Santa Cruz River within the City limits (around 5,100 acres).

Specific goals of this report are to: (1) describe the criteria used to evaluate species for consideration under a Habitat Conservation Plan (HCP), Safe Harbor Agreement (SHA) or Candidate Conservation Agreement (CCAA); (2) provide a framework for considering special elements in the planning process; and (3) classify a suite of potential target species with respect to occurrence and listing potential. This report summarizes existing information on special interest species for consideration in the City's HCP process. This information was initially presented to the City's technical advisory committee on August 4, 2004 as a basis for initiating the discussion of potential conservation targets. This information has been, and continues to be, reviewed and revised by the technical advisory committee; however, none of their input has been summarized and integrated into the draft conservation target list. This report, therefore, represents the work of SWCA Environmental Consultants only.

Sources of information considered in this report include:

- The website prepared for Pima County as part of the Sonoran Desert Conservation Plan (<http://www.dot.co.pima.az.us/cmo/sdcpmaps/>);
- Reports compiled as part of the SDCP;
- Data compiled by the Arizona Heritage Data Management System;
- Data compiled for the Arizona Breeding Bird Atlas;
- Unpublished biological reports for projects in the vicinity of the Southlands; and
- Personal experience of Senior Scientists, Kenneth J. Kingsley and Kenneth J. Kertell, who have visited the study area.

## **2.0 POTENTIAL CONSERVATION TARGETS**

The suite of potential conservation targets considered in this report includes all species with some level of federal, state, or local conservation status. The lists used to generate this set of potential target species are the:

- U.S. Fish and Wildlife Service's Federal Status Species List for Pima County and the now-defunct category-2 candidate species list;
- Arizona Game and Fish Department's list of Wildlife Species of Concern and the Arizona Department of Agriculture's list of Highly Safeguarded plant species;
- Pima County's Priority Vulnerable Species List; and
- Town of Marana's Phase 1 conservation targets.

### **2.1 SPECIES WITH FEDERAL STATUS**

The U.S. Fish and Wildlife Service (USFWS) maintains a list of special status species for each county in Arizona (USFWS 2004). This list includes all federally listed endangered or threatened species, and any species which are proposed or candidates for listing. Proposed status occurs when the listing of a species has been formally initiated by USFWS with the issuance of a proposed rule in the Federal Register, but the listing has not yet been finalized. Candidate species are those for which USFWS has sufficient information to support a listing proposal, but for which proposed rules have not yet been issued.

Prior to 1996, the USFWS also maintained a list of species regarded as "category-2 candidates." Category-2 candidates were species for which the USFWS had information indicating that formal listing might be warranted, but for which sufficient data on status and threat were not available to support a listing proposal. Although the USFWS has discontinued the designation of category-2 species, former category-2 candidates are now referred to as "Species of Concern" or "Species at Risk" and are generally recognized as those species whose conservation status may be of concern to the USFWS, but for which insufficient information exists regarding status and threats to support a listing proposal. The Arizona Game and Fish Department maintains a database of sensitive species that includes all of these former category-2 candidates (AGFD 2004).

### **2.2 SPECIES WITH STATE STATUS**

The Arizona Game and Fish Department (AGFD) identifies species whose Arizona populations are experiencing significant declines, are subject to known or perceived threats, or are or may be in jeopardy based on the agency's listing criteria for Wildlife of Special Concern in Arizona

(AGFD 2004). These species are those formerly considered Threatened Native Wildlife in Arizona (AGFD 1988).

Under the Arizona Native Plant Law (A.R.S. 3-903), native plants whose populations are in jeopardy, in danger of extinction throughout all or a significant portion of their ranges, or are likely to become jeopardized or in danger of extinction within the foreseeable future are recognized as “Highly Safeguarded” species and strictly regulated by the Arizona Department of Agriculture (ADA). Although other classes of protection exist under this law, the “Highly Safeguarded” category is the only one tied to a species’ conservation status. For this reason, only this category is considered in developing the Tucson’s conservation target list.

## **2.3 SPECIES WITH LOCAL STATUS**

In 1998, Pima County began a large-scale, comprehensive conservation planning process that culminated in the Sonoran Desert Conservation Plan (SDCP). The SDCP covers all of Pima County and provides a thorough evaluation of appropriate regional conservation targets. The SDCP identified 40 species, and a group of 15 talus snail species, as Priority Vulnerable Species in Pima County (RECON 2002). In addition to species with federal or state conservation status, this list was developed based on the input from local scientists regarding species that were believed to be in jeopardy in Pima County or for which the Pima County population is considered crucial to the survival of the overall species, whether or not they were considered to be at risk over their entire range. All Priority Vulnerable Species have been included in the preliminary City of Tucson conservation target list.

The Town of Marana initiated its own conservation planning process in 2002. Marana used the County’s Priority Vulnerable Species list as the starting point for their set of conservation targets. Upon review of the County list, the Marana Technical Biology Team suggested an additional 4 species merited consideration as conservation targets for the Town’s plan. These additional species have also been included in the attached list of potential City of Tucson conservation targets.

## **3.0 SPECIES CATEGORIZATION**

The initial list was refined for further consideration by classifying the proposed conservation targets into several categories. As a part of this conservation planning process, the City wishes to evaluate species based on whether they would more appropriately be considered for coverage under an HCP, or alternately, a Safe Harbor Agreement (SHA) or Candidate Conservation Agreement with Assurances (CCAA).

The purpose of an HCP is, ultimately, to support an application for an incidental take permit under the Endangered Species Act (ESA). This permit would allow take of federally listed species that would potentially result from activities implemented or permitted by the City. Based on this goal, the City has established the following criteria to guide the selection of HCP candidate species:

1. Federally endangered, threatened, proposed, or candidate species occurring in the planning area; and
2. Species whose population numbers are generally declining throughout their range and are threatened by human activities such that there is a reasonable likelihood that these species could be federally listed within the next 5-10 years and for whom conservation efforts in the planning area will make a significant contribution to their long-term conservation

There are several river restoration projects currently in the feasibility planning stage along the Santa Cruz River in and around Tucson. Projects such as these may recreate the habitat types utilized by endangered species that historically occupied the Tucson area but are currently extirpated or extremely uncommon. The ESA does not distinguish between impacts to species that are in areas of natural habitat and those that occupy artificial or restored habitat. These types of situations are typically addressed through SHAs or CCAAs, rather than as a part of an HCP. The City is concerned about the potential impact of future activities on species that may become established naturally in the planning area in response to habitat restoration projects and, in order to address these concerns, has established a second set of criteria for the selection of species that may need to be addressed through these types of agreements.

Species which will be considered for SHAs or CCAAs are:

1. Federally endangered, threatened, proposed, or candidate species having a likelihood of becoming established naturally within the planning area as a result of habitat restoration activities; and
2. Species whose population numbers are generally declining throughout their range and are threatened by human activities such that there is a reasonable likelihood that these species could be federally listed within the next 5-10 years and that have a likelihood of becoming established naturally within the planning area as a result of habitat restoration activities.

### **3.1 SPECIES OCCURRENCE**

The first step in selecting appropriate conservation targets was to determine whether each species was present within the planning area or had potentially suitable habitat within the planning area. Presence of species within the planning area was based on the Priority Conservation Areas identified for each species in the County's Priority Vulnerable Species list, other reports



associated with the SDCP, species occurrence data compiled by the Heritage Data Management System, which includes data reported in the Arizona Breeding Bird Atlas, unpublished biological reports for sites near the planning area, and site visits by and personal experience of consulting scientists (SWCA 2003a and 2003b).

For species without potentially suitable habitat in the City’s planning area, the next question was whether suitable habitat might be created through one of several river restoration projects or through the creation of artificial water features, such as recharge facilities or tertiary treatment facilities. Species that did not meet either of the above criteria have been classified as “Absent” and can be removed from further consideration in the planning process. Using these two criteria, all of the species were classified into one of 4 categories:

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Table 1. Species Occurrence Categories.

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OCCURRENCE CATEGORY	DEFINITION
<b>Present</b>	The species has been documented to occur in some portion of the planning area.
<b>Potential</b>	Based on occurrence data, information from the SDCP, and site visits by consulting scientists, there is potentially suitable habitat for the species in some portion of the planning area.
<b>Restoration Potential</b>	With the implementation of river restoration or other water projects, suitable habitat can be created for the species within the planning area.
<b>Absent</b>	There is no suitable habitat, and no potential for restoration or water projects to create suitable habitat, for the species in any portion of the planning area.

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Only species that fall into the first two categories (Present and Potential) will be considered as potential conservation targets for the City’s HCP. Species in the “Restoration Potential” category may be appropriate for consideration under an SHA or CCAA.

One final distinction is important in identifying SHA/CCA target species, that is whether the species is capable of moving into the planning area naturally or would have to be actively reintroduced. The “Restoration Potential” species on the attached spreadsheet are therefore divided into species “with potential to recolonize planning areas by natural processes if habitat is created or restored” and species “with potential to be restored to planning areas if habitat is created or restored and species is introduced”.

### **3.2 POTENTIAL FOR FEDERAL LISTING**

The second criterion used to select potential HCP conservation targets is federal listing status. The purpose of an HCP is to address impacts to listed species so, clearly, these species need to be included in a habitat conservation planning process. Species that have not been listed as threatened or endangered, however, can also be included in an HCP, with incidental take coverage being obtained when/if the species becomes listed. Choosing to cover species under an HCP that are currently not listed, but are vulnerable, can be an efficient means of addressing species that have a high probability of becoming listed in the near future. On the other hand, committing to cover a species under an HCP, whether that species is listed or not, brings some cost in the form of species and/or land management, monitoring, and reporting. For species not likely to become listed during the permit period, this costs brings no associated ESA benefit.

Unfortunately, given the amount of uncertainty surrounding most sensitive species with respect to their population status and trend, it is difficult, if not impossible, to say with any certainty whether a species will become listed at some point in the permit period. In order to balance this uncertainty with the benefits of addressing species likely to be listed in the near future, species will considered to be potential HCP candidates if they are likely to become listed within the next 5 to 10 years.

The Town of Marana used the same criterion in selecting conservation targets, so the listing status assigned by the Town’s Technical Biology Team is given for each species considered in the Marana planning process. In making these evaluations, the Technical Biology Team considered the USWFS’s five listing criteria for each unlisted species. Species on the attached spreadsheet fall within one of the following categories:

In order to finalize the suite of conservation targets to be considered both for an HCP and for SHA/CCAs, species in the “Not Considered” category will need to be evaluated with respect to whether or not those species are likely to become listed within the next 5 to 10 years.

Table 2. Potential Federal Listing Categories as Based on the Marana Habitat Conservation Planning Process.

STATUS CATEGORY	EXPLANATION
Listed	The species is currently federally listed as threatened or endangered.
Likely to be Listed	The species was considered likely to be listed within the next 5 to 10 years by the Town of Marana Technical Biology Team.
Not Likely to be Listed	The species was considered not likely to be listed within the next 5 to 10 years by the Town of Marana Technical Biology Team.
Not Considered	The species was not considered in the Town of Marana habitat conservation planning process. Listing status will be evaluated for these species in the City's planning process.
N/A	There is no suitable habitat, and no potential for restoration or water projects to create suitable habitat, for the species in any portion of the planning area, therefore consideration of listing status is not appropriate.

### 3.3 TARGET CATEGORIES

The combination of species occurrence and listing status/potential results in a number of different categories of target species. The following table summarizes each occurrence/listing combination, the number of species in each category, and the ESA compliance mechanism appropriate for that category based on the criteria described in the technical and stakeholder advisory team charters.

Table 3. Conservation Target Categories Based on Species Occurrence or Potential for Occurrence and Listing Status or Potential.

<b>STATUS CATEGORY</b>	<b>NUMBER OF SPECIES</b>	<b>ESA COMPLIANCE MECHANISM</b>
Present/Potential & Listed/Likely to be listed	8	Consider for HCP.
Present/Potential & Not Likely to be listed	13	No immediate ESA concerns. HCP coverage not a priority.
Potential for natural recolonization if habitat restored & Listed/Likely to be listed	6	Consider for SHA or CCAA.
No potential for natural recolonization even if habitat restored & Listed/Likely to be listed	10	No immediate ESA concerns. SHA/CCAA coverage not a priority.
No potential for natural recolonization even if habitat restored & Not likely to be listed	2	No immediate ESA concerns. SHA/CCAA coverage not a priority. Time permitting, consider development of voluntary conservation measures.
Potential listing status uncertain	9	Use USFWS listing criteria to evaluate listing potential.
Absent or Only occurring sporadically in planning area (Accidental)	49	No ESA concerns. Exclude from planning process.

#### 4.0 SPECIAL ELEMENTS

In addition to selecting priority vulnerable species, the SDCP science team identified 21 vegetation communities, habitats, and landscape elements that had to be or should be captured to some extent in any reserve design. In the County process, these “special elements” were incorporated into the reserve according to the following conservation goals:

Table 4. SDCP Special Element Conservation Goals.

CONSERVATION GOAL	DEFINITION
Constraint	All occurrences of the feature should be captured in a reserve design, regardless of size.
Preference	As many occurrences of the feature should be included in the reserve as possible.
Restore or Manage	The feature should be restored because it has been reduced in quality or extent; the feature should be managed to prevent further losses.
Accounting	The feature is widespread and does not constrain the location of biological reserves, but for accounting purposes, the areal extent captured by the reserve system is noted. This element may have functional significance with respect to reserve design considerations.

Pima County's goal of capturing a portion of all native plant communities in their reserve system is highly appropriate at the scale of the county; however, the role of special elements in conservation planning at a local scale may be more effectively focused toward preserving those elements that are unique to the smaller planning area.

A portion of the following special elements fall within the City of Tucson HCP planning area. The SDCP conservation goal of each element is noted.

- Creosote-bursage – Accounting
- Paloverde-mixed cacti – Accounting
- Mesquite woodland – Constraint/Restore
- Sonoran riparian scrub – Constraint
- Low elevation valley floor – Accounting

## 5.0 INITIAL CONSERVATION TARGETS WITH CATEGORIZATIONS BASED ON OCCURRENCE AND FEDERAL LISTING POTENTIAL

A categorization of the 97 species is provided in Appendix A. Included in the table is an evaluation of whether or not suitable habitat for a species occurs within the planning area. For

non-listed species, some discussion is provided regarding population trends, changes in range, or other factors which may influence listing potential for each species.

## **6.0 REFERENCES**

Arizona Game and Fish Department (AGFD).

- 2004. Arizona's Natural Heritage Program: Heritage Data Management System (HDMS). [http://www.gf.state.az.us/w\\_c/edits/species\\_concern.shtml](http://www.gf.state.az.us/w_c/edits/species_concern.shtml). Accessed July 28, 2004.

Arizona Game and Fish Department (AGFD).

- 1988. Threatened native wildlife in Arizona. Arizona Game and Fish Department publication. Phoenix, AZ. 32 pp.

RECON.

- 2002. Draft Priority Vulnerable Species. Report prepared in support of the Sonoran Desert Conservation Plan for Pima County, AZ, January 2002.

SWCA Environmental Consultants (SWCA).

- 2003a. The Southlands Study Area: Biological Resources, Mitigation Opportunities and Constraints. February 2003.
- 2003b. Biological Resources and Mitigation Opportunities and Constraints for the City of Tucson Properties in the Avra Valley. September 2003.

U.S. Fish and Wildlife Service (USWFS).

- 2004. County Species Lists - Pima County. <https://fw2azes.r2.fws.gov/specmgt.nsf/ed54842715f0697d07256bd1006a0322?OpenView>. Accessed July 28, 2004.

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**APPENDIX A**

**INITIAL CONSERVATION TARGETS FOR THE CITY OF TUCSON HABITAT  
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